Lecture Handout #07: Sep 20

Exponentials in the form $P_0 e^{kt}$

You place \$1000 in a savings account with interest compounded continuously. After 20 years, suppose the balance is \$ _____

- Continuous growth rate $k =$ _____
- Total time required to double the balance: $t =$ _____

Caloric Consumption of Mammals

A mammal's calorie consumption is proportional to its weight raised to the _____ power.

- Formula for consumption: $C(w) = k$ _____
- Estimate for k: _____
- Calorie consumption of a 4-ton elephant: _____ per day

Graphs of Common Power Functions

Set $k = 1$, and graph $y = x^p$ for different p values:

$p = 1$

$p = -1$

$p = 1/2$

$p = 2$

$p = -2$

$p = 1/3$